

Attorney Docket No.: GC647-2		Serial No.: 10/008,620	
Applicant: Rodriguez et al.			
Filing Date: December 4, 2001		Group: 1627	
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#### US PATENT DOCUMENTS

Examiner's	Document				Sub-	Filing
Initial	Number	Date	Name	Class	Class	Date
JE	*5,093,257	03/03/92	Gray			
	*5,270,170	12/14/93	Schatz et al.			
	*5,521,077	05/28/96	Khosla et al.			
	*5,830,696	11/03/98	Short			

#### FOREIGN PATENT DOCUMENTS

Examiner's	Document				Sub-	Translation
Initials	Number	Date	Country	Class	Class	Yes/No
JE	*WO 87/01374	03/12/87	PCT			
	*EP 0 563 103 B1	12/17/91	EP			
	*WO 97/15657	05/01/97	PCT			
	*WO 97/07205	02/27/97	PCT			
	*WO 97/46670	12/11/97	PCT			
	*WO 98/05765	02/12/98	PCT			
	*WO 98/10102	03/12/98	PCT			
	*WO 98/17684	04/30/98	PCT			
	*WO 98/28416	07/02/98	PCT			
	*WO 98/41623	09/24/98	PCT			
	*WO 98/41653	09/24/98	PCT			
	*WO 98/41622	09/24/98	PCT			
	*WO 98/51802	11/19/98	PCT			

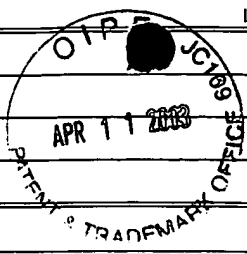
#### OTHER DOCUMENTS

Examiner's	Author, Title, Date, Pertinent Pages, etc.
JE	*Aslanidis et al., "Ligation-independent cloning of PCR products (LIC-PCR), <i>Nucleic Acids Research</i> , V. 18, No. 20 pp.6069-6074 (1990)
	*Bashkurov, V., et al., "Interplasmidic illegitimate recombination in <i>Bacillus subtilis</i> ," <i>Mol Gen Genet</i> , V.1, 213 pp.465-470 (1988)
	*Beck et al., "Introduction of arbitrary sequences into genes by use of class IIs restriction enzymes," <i>Nucleic Acids Research</i> , V. 22, N. 5, pp. 886-887 (1994)
	*Berger, S. et al., "Phoenix Mutagenesis: One-Step Reassembly of Multiply Cleaved Plasmids with Mixtures of Mutant and Wild-Type Fragments," <i>Analytical Biochemistry</i> , 214, pp. 571-579 (1993)
	*Bron, S. et al., "Ultraviolet Inactivation and Excision-Repair in <i>Bacillus Subtilis</i> ," <i>Mutation Research</i> , 15 pp.1-10 (1972)
Examiner	Date Considered
	8/28/03
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## INFORMATION DISCLOSURE CITATION

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## OTHER DOCUMENTS

Examiner's	
Initials	Author, Title, Date, Pertinent Pages, etc.
JZ	*Canosi, U. et al, "Plasmid Transformation in Bacillus Subtilis: Effects of Insertion of Bacillus Subtilis DNA into Plasmid pC194," <i>Mol Gen Genet</i> , 181, pp. 434-440 (1981)
	*Cheng, S. et al, "Effective amplification of long targets from cloned inserts and human genomic DNA," <i>Proc. Natl. Acad. Sci. USA</i> , V.91, pp.5695-5699 (1994)
	*Contente, S. et al, "Marker Rescue Transformation by Linear Plasmid DNA in Bacillus Subtilis," <i>Plasmid</i> , 2, pp.555-571 (1979)
	*Cramer, A. et al, "DNA shuffling of a family of genes from diverse species accelerates directed evolution," <i>Nature</i> , V.391 pp.288-291 (1998)
	*Cramer et al., "Combinatorial Multiple Cassette Mutagenesis Creates All the Permutations of Mutant and Wild-Type Sequences," <i>Benchmarks</i> , V. 18, No. 2, pp. 194-196 (1995)
	*Dustin, M. et al, "A novel Mutagenesis Strategy Identifies Distantly Spaced Amino Acid Sequences the are Required for the Phosphorylation of Both the Oligosaccharides of Procathepsin D by N-Acetylglucosamine 1-Phosphotransferase," <i>The Journal of Biological Chemistry</i> , V.270, No.1, pp.170-179 (1995)
	*Guerout-Fleury, A. et al, "Plasmids for ectopic integration in Bacillus subtilis," <i>Gene</i> , 180, pp.57-61 (1996)
	*Hall, Berry G., "Changes in the substrate specificities of an Enzyme during Directed Evolution of New Functions," <i>Biochemistry</i> , 20, pp.4042-4049 (1981)
	*Horton, R. M. et al, "Engineering hybrid genes without the use of restriction enzymes: gene splicing by overlap extension," <i>Gene</i> , 77, pp.61-68 (1989)
	*Iglesias, A. et al, "Plasmid Transformation in Bacillus subtilis: Symmetry of gene conversion in Transformation with a Hybrid Plasmid Containing Chromosomal DNA," <i>Mol Gen Genet</i> , 189, pp. 73-76 (1983)
	*Jansen, R. et al, "Disruption of phase during PCR amplification and cloning of heterozygous target sequences," <i>Nucleic Acids Research</i> , V.18, No. 17 pp.5153-5156 (1990)
	*Judo, M. et al, "Stimulation and suppression of PCR-mediated recombination," <i>Nucleic Acids Research</i> , Vol.26, No. 7, pp.1819-1825 (1998)
	*Kuijper et al., "Functional cloning vectors for use in directional cDNA cloning using cohesive ends produced with T4 DNA polymerase," <i>GENE</i> , issue 06325, PP. 147-155 (1992)
	*Lebedenko, et al., "Method of artificial DNA splicing by directed ligation (SDL)," <i>Nucleic Acids Research</i> , V. 19, N. 24, pp. 6757-6761 (1991)
	*Ling et al., "Approaches to DNA Mutagenesis An Overview," <i>Analytical Biochemistry</i> , V. 254,157-178 (1997) Article No AB972428
	*Kuchner, O. et al, "Directed evolution of enzyme catalysts," <i>TIB Tech</i> , Vol.15, 9 pages (1997)
	*Markland et al., "Iterative Optimization of High-Affinity Protease Inhibitors Using Phage Display. 1 Plasmin," <i>Biochemistry</i> , V. 35, pp. 8045-8057 (1996)
	*Marton, A. et al, "DNA nicking favors PCR recombination," <i>Nucleic Acids Research</i> , Vol.19, No.9, pp.2423-2426 (1991)
	*Merino et al., "A General, PCR-Based Method for Single or Combinatorial Oligonucleotide-Directed Mutagenesis on pUC/M13 Vectors," <i>BioFeedback</i> , V. 12, No. 4, pp. 508-510, (1992)
	*Meyerhans, A. et al, "DNA recombination during PCR," <i>Nucleic Acids Research</i> , Vol.18, No.7, pp.1687-1691 (1990)
	*Michel, B. et al, "Intramolecular recombination during plasmid transformation of Bacillus subtilis competent cells," <i>The EMBO Journal</i> , Vol.1, No.12, pp.1565-1571 (1982)
	*Michel, B. et al, "Intermolecular recombination during Transformation of Bacillus subtilis Competent Cells by Monomeric and Dimeric Plasmids," <i>Plasmid</i> , 10, pp.1-10 (1983)
	*Ness, J. et al, "DNA shuffling of subgenomic sequences of subtilisin," <i>Nature Biotechnology</i> , Vol. 17, pp.893-896 (1999)
	*Niaudet, B. et al, "Insertional mutagenesis in Bacillus subtilis: mechanism and use in gene cloning," <i>Gene</i> , 19, pp.277-284 (1982)
Examiner	
for G	8/8/03
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Applicant: Rodriguez et al.		
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## OTHER DOCUMENTS

Examiner's	
Initials	Author, Title, Date, Pertinent Pages, etc.
<i>JE</i>	*Noirot, M.-A. et al, "Plasmid Replication Stimulates DNA Recombination in <i>Bacillus subtilis</i> ," <i>J. Mol. Biol.</i> , 196, pp.39-48 (1987)
<i>J</i>	*Odelberg, S. et al, "Template-switching during DNA synthesis by <i>Thermus aquaticus</i> DNA polymerase 1," <i>Nucleic Acids Research</i> , Vol.23, No.11, pp.2049-2057 (1995)
<i>J</i>	*Osuna et al., "Combinatorial mutagenesis of three major groove-contacting residues of <i>EcoRI</i> : single and double amino acid replacements retaining methyltransferase-sensitive activities," <i>GENE</i> , v. 106 pp. 7-12 (1991)
<i>J</i>	*Paabo, S. et al, "DNA Damage Promotes Jumping between Templates during Enzymatic Amplification," <i>The Journal of Biological Chemistry</i> , Vol.265, No.8, pp.4718-4727 (1990)
<i>J</i>	*Padgett et al., "Creating seamless junctions independent of restriction sites in PCR cloning," <i>GENE</i> , v. 168 PP. 31-35, (1996)
<i>J</i>	*Peck, Joel R., "A Ruby in the Rubbish: Beneficial Mutations, Deleterious Mutations and the Evolution of Sex," <i>Genetics</i> , 137, pp.597-606 (1994)
<i>J</i>	<del>*QuikChange™ Site-Directed-Mutagenesis Kit™ Stratagene</del>
<i>JE</i>	*Rudolph, C. et al, "Transformation of <i>Bacillus subtilis</i> by Single-Stranded Plasmid DNA," <i>Journal of Bacteriology</i> , Vol.165, No.3, pp.1015-1018 (1986)
<i>J</i>	*Schulga, A. et al, "An approach to construction of Hybrid Polypeptide molecules-homologue recombination method," <i>Nucleic Acids Research</i> , Vol.22, No.18, pp.3808-3810 (1994)
<i>J</i>	*Shao, Z. et al, "Random-priming in vitro recombination: an effective tool for directed evolution," <i>Nucleic Acids Research</i> , Vol.26, No.2, pp.681-683 (1998)
<i>J</i>	*Shi, X.-B. et al, "Rapid PCR Construction of a Gene Containing Lym-1 Antibody Variable Regions," <i>PCR Methods and Applications</i> , pp.46-53 (1993)
<i>J</i>	*Stemmer, William P.C., "DNA shuffling by random fragmentation and reassembly: in vitro recombination for molecular evolution," <i>Proc. Natl. Acad. Sci. USA</i> , Vol.91, pp.10747-10751 (1994)
<i>J</i>	*Stemmer, William P.C., "Searching Sequence Space: Using recombination to search more efficiently and thoroughly instead of making bigger combinatorial libraries," <i>Bio/Technology</i> , Vol.13, pp.549-553 (1995)
<i>J</i>	*Stoker, "Cloning of PCR products after defined cohesive termini are created with T4 DNA polymerase," <i>Nucleic Acids Research</i> , V. 18, No. 14, pp. 4290, (1990)
<i>J</i>	*Szybalski et al., "Class-IIS restriction enzymes - a review," <i>GENE</i> , v. 100, PP. 13-26 (1991)
<i>J</i>	*Tawfik, D. et al, "Man-made cell-like compartments for molecular evolution," <i>Nature Biotechnology</i> , vol.16, pp.652-656 (1998)
<i>J</i>	*Tseng, "DNA Cloning without Restriction Enzyme and Ligase," <i>Research Report</i> , V. 27 No. 6 pp. 1240-1244, (1999)
<i>J</i>	<del>*Tu et al., "Generation of a Combination of Mutations by Use of Multiple Mutagenic Oligonucleotides," <i>Benchmarks</i>, V. 20, N. 3, pp. 352-358</del>
<i>JE</i>	*Wu et al., "Humanization of a Murine Monoclonal Antibody by Simultaneous Optimization of Framework and CDR Residues," <i>J. Mol. Biol.</i> , V. 294, pp. 151-162, (1999)
<i>J</i>	*Young, Michael, "The Mechanism of Insertion of a Segment of Heterologous DNA into the Chromosome of <i>Bacillus subtilis</i> ," <i>Journal of General Microbiology</i> , 129, pp.1497-1512 (1983)
<i>J</i>	*Zhang, J.-H. et al, "Directed evolution of a fucosidase from a galactosidase by DNA shuffling and screening," <i>Proc. Natl. Acad. Sci. USA</i> , Vol.94, pp.4504-4509 (1997)
<i>J</i>	*Zhao, H. et al, "Optimization of DNA shuffling for high fidelity recombination," <i>Nucleic Acids Research</i> , Vol.25, No.6, pp.1307-1308 (1997)
<i>J</i>	*Zhao, H. et al, "Molecular evolution by Staggered extension process (STEP) in vitro recombination," <i>Nature Biotechnology</i> , Vol.16, pp.258-261 (1998)
<i>J</i>	*Zoller, "New Recombinant DNA methodology for protein engineering," <i>Current Biology Ltd.</i> , 3:348-354 (1992)

Examiner	Date Considered
<i>[Signature]</i>	<i>8/28/03</i>
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**US PATENT DOCUMENTS**

Examiner's	Document				Sub-	Filing
Initial	Number	Date	Name	Class	Class	Date
<u>JE</u>	5,512,463 A	4/30/96	Stemmer	435	01.2	6/4/94
	5,789,166	8/4/98	Bauer et al.	435	6	12/8/95
	5,932,419	8/3/99	Bauer et al.	435	6	4/17/97
	6,251,604 B1	6/26/01	Lietz	435	6	8/13/99
	6,319,694 B1	11/20/01	Lietz	435	01.2	3/3/00

**FOREIGN PATENT DOCUMENTS**

Examiner's	Document				Sub-	Translation
Initials	Number	Date	Country	Class	Class	Yes/No
<u>JE</u>	WO 93/12257	6/24/93	PCT			

**OTHER DOCUMENTS**

Examiner's		
Initials	Author, Title, Date, Pertinent Pages, etc.	
<u>JE</u>	Chen et al., "Amplification of closed circular DNA in vitro," Nucleic Acids Research, vol. 26, no. 4, pp. 1126-1127, 1998.	
	Copy of PCT Search Report	
Examiner	<u>JE</u>	Date Considered <u>8/18/03</u>
<p>Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p> <p>PTO-1449</p>		

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